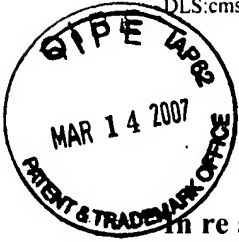


PATENT

Attorney Matter No. 4641-62398-01



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Tomowaki Takahashi

Date Mailed March 12, 2007

Patent No. 6,867,931

Issued: March 15, 2005

Application No. 10/086,472

Filed: February 28, 2002

Confirmation No. 3196

For: DUAL IMAGING OPTICAL SYSTEM

Examiner: Thong Q. Nguyen

Art Unit: 2872

Attorney Reference No. 4641-62398-01

Certificate

MAR 16 2007

of Correction

COMMISSIONER FOR PATENTS

P.O. BOX 1450

ALEXANDRIA, VA 22313-1450

REQUEST FOR CERTIFICATE OF CORRECTION

The following error was noted in comparing the printed patent with the papers in the attorneys' files:

On the Cover (Related U.S. Application Data):

Page 1, columns 63-64, "Continuation of application No. 09/679,268, filed on October 4, 2000, now Pat. No. 6,454,385" should read --Continuation of application No. 09/679,267, filed October 4, 2000, now Pat. No. 6,392,822.--

To assist with clarification of the error, we have attached the cover sheet of each patent referenced above. See also IDS of February 28, 2002, which provides the correct information.

A check in the amount of \$100.00 is enclosed for the fee due under 37 C.F.R.

§ 1.20(a).

03/14/2007 FMETEKI1 00000043 6867931

01 FC:1811

100.00 OP

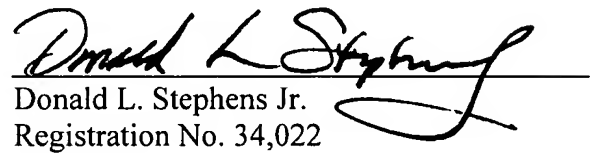
The Director is hereby authorized to charge any additional fees that may be required to file this Request for Certificate of Correction, or credit overpayment, to Account No. 02-4550. A copy of this sheet is enclosed.

Respectfully submitted,

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By


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cc: Client
Docketing

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 6,867,931

DATED : March 15, 2005

INVENTOR(S) : Tomowaki Takahashi

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

On the Cover (Related U.S. Application Data):

Page 1, columns 63-64, "Continuation of application No. 09/679,268, filed on October 4, 2000, now Pat. No. 6,454,385" should read --Continuation of application No. 09/679,267, filed October 4, 2000, now Pat. No. 6,392,822.--

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PATENT NO. 6,867,931
No. of add'l copies _____
(@ .30 per page)

Correct Patent



US006392822B1

(12) **United States Patent**
Takahashi

(10) **Patent No.:** **US 6,392,822 B1**
(45) **Date of Patent:** **May 21, 2002**

(54) **DUAL-IMAGING OPTICAL SYSTEM**

(75) Inventor: **Tomowaki Takahashi, Tokohama (JP)**

(73) Assignee: **Nikon Corporation, Tokyo (JP)**

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **09/679,267**

(22) Filed: **Oct. 4, 2000**

Related U.S. Application Data

(63) Continuation of application No. 08/877,920, filed on Jun. 18, 1997, now Pat. No. 6,157,498.

(30) **Foreign Application Priority Data**

Jun. 19, 1996 (JP) 8-179881
Jun. 19, 1996 (JP) 8-179882

(51) Int. Cl.⁷ **G02B 17/08; G03B 27/42**

(52) U.S. Cl. **359/728; 359/364; 359/727**

(58) Field of Search **359/365-367, 359/726-732, 708, 856-860; 355/52-69**

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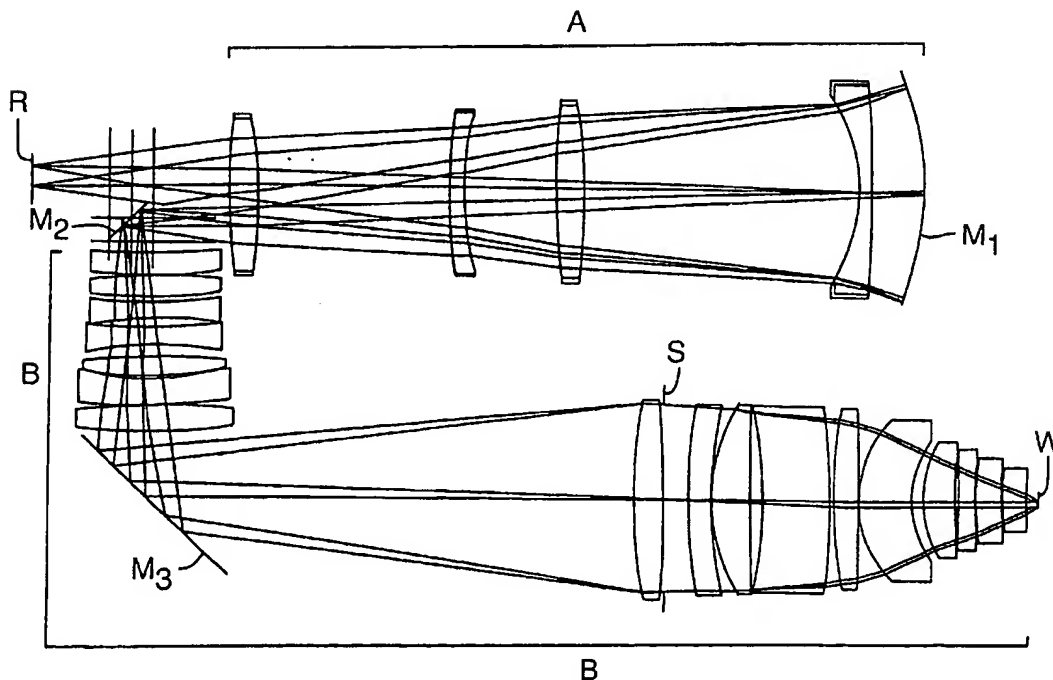
Primary Examiner—Thong Nguyen

(74) *Attorney, Agent, or Firm*—Klarquist Sparkman, LLP

(57) **ABSTRACT**

An optical imaging system especially for microlithography includes a first imaging system forming an intermediate image of an object, and a second imaging system forming, on a surface, an image of the intermediate image. A reflective surface directs light from the first imaging system to the second imaging system. An aspherical corrective optical surface is located at or near the location of the intermediate image for correcting aberrations such as high-order distortion, aberrations due to accumulation of manufacturing tolerances, and spherical aberration. The first imaging system comprises a positive power refractive element and a concave mirror. The second imaging system comprises refractive elements and no concave mirror.

32 Claims, 7 Drawing Sheets





US006454385B1

(12) **United States Patent**
Anderson et al.

(10) Patent No.: **US 6,454,385 B1**
(45) Date of Patent: **Sep. 24, 2002**

(54) **SLICED SPONGE SCRAPER SYSTEM FOR INKJET WIPERS**

(75) Inventors: **Jeffrey J. Anderson**, Vancouver, WA (US); **John A. Barinaga**, Portland, OR (US)

(73) Assignee: **Hewlett-Packard Company**, Palo Alto, CA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 56 days.

(21) Appl. No.: **09/679,268- 267**

(22) Filed: **Oct. 4, 2000**

(51) Int. Cl.⁷ **B41J 2/165**

(52) U.S. Cl. **347/28; 347/33**

(58) Field of Search **347/33, 28**

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Primary Examiner—David F. Yockey

(57) **ABSTRACT**

A scraper system having coarse and fine cleaning components is provided for cleaning ink residue from a wiper after wiping ink residue from a printhead in an inkjet printing mechanism. The scraper system includes a stationary coarse scraper bar which the wiper passes over to remove the ink residue from the wiper body. The system a fine scraper of a foam material which may be impregnated with an ink solvent. The fine scraper foam is sliced to form segments separated by slits. As the wiper passes over the fine scraper, the wiper tip plunges into the slits to remove ink residue from the important wiper tips, leaving them clean for the next printhead wiping stroke. The fine scraper may be cam actuated to selectively engage the wiper or mounted stationarily. A method of cleaning printheads and inkjet printing mechanisms having scraper system are also provided.

35 Claims, 16 Drawing Sheets

